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Clark A. Bendall

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WALL MARJAMA & BILINSKI
101 SOUTH SALINA STREET
SUITE 400
SYRACUSE, NY 13202

EXAMINER

FINEMAN, LEE A

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/056,868	Applicant(s) BENDALL ET AL.	
	Examiner Lee Fineman	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5,7-43,45-50 and 54-86 is/are pending in the application.
- 4a) Of the above claim(s) 4,41-43,47,49,80-82,84 and 86 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,7-40,45,46,48,50,54-79,83 and 85 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 30 August 2004 has been entered in which claims 1, 7, 10-11, 14-17, 24-27, 45-46, 48, 50, 54, 57, 60, 69, 78 and 85 were amended and claims 2-3, 6, 44 and 51-53 have been cancelled. Claims 1, 4-5, 7-43, 45-50 and 54-86 are pending, of which claims 4, 41-43, 47, 49, 80-82, 84 and 86 are withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 11, 15-30, 39-40, 45-46, 48, 58-70, 75-79 and 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi, U.S. Patent No. 5,522,789, in view of Sakiyama et al., U.S. Patent No. 6,063,023.

Regarding claim 11, Takahashi discloses a device for viewing an object with a probe (figs. 13(a)-(c)) comprising an image splitting means (28 and 27A) for splitting an image of said object into a first (R) and second (L) adjacent stereo image parts which are symmetrical (fig. 13

Art Unit: 2872

(c)); image detecting means (31) for detecting stereo image parts and is a single electronic imager (column 12, lines 66-67); and focusing means (5 and fig. 13(b)) for focusing said first and second stereo image parts from said image splitting means (28 and 27A) to said image detecting means (31); and a display means (35) for viewing said stereo image parts as detected by said image detecting means. Takahashi discloses the claimed invention except wherein at least one of first and second portions of said image are displayed at a different magnification from said first and second adjacent stereo image parts, with both said at least one of first and second portions and said first and second adjacent stereo image parts being displayed simultaneously by said display means. Sakiyama et al. teach wherein at least one of first and second portions of said image are displayed at a different magnification from said first and second adjacent stereo image parts, with both said at least one of first and second portions and said first and second image adjacent stereo parts being displayed simultaneously by said display means (column 8, lines 36-38). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make and view the images parts of Takahashi different magnification to provide flexibility in examining object characteristics. The method of utilizing the structure of the claim is inherent therein.

Regarding claims 15-21, 23-24, 26, 60-66, and 68, Takahashi discloses the claimed invention except for further comprising a measurement means with an optical character set including optical mapping distortion, magnification at one or more object target distances and parallax information, for comparing parameters of said first and second stereo image parts so that measurement data of said object are determined, wherein said measurement data includes at least one geometric characteristic of said object; wherein said device receives and uses one of a

Art Unit: 2872

plurality of detachable distal tips, wherein each of said tips has a corresponding optical character data set and wherein data determined from said image is used to select which optical characteristics data set corresponds to said detachable tip in said probe; wherein the optical characteristics data set is adjusted so the probe is operable in a medium with an index of refraction other than air; wherein the optical characteristics data set is stored in non-volatile memory; and further comprising a calibration means for generating said optical characteristics data set of said device, wherein said calibration means includes a plurality of object target points which appear in both of said first and second stereo image parts when viewed with said probe wherein said plurality of object target points comprises at least two object target points with known spacing between them at a first object target distance and at least two object target points with known spacing between them at a second target distance, wherein a distance between said first and second object target distances is known and wherein one of said first and second object target distances is known and includes using a reflection of illumination of at least one known object target distance and a means for color balancing. Sakiyama et al. teach a measurement means (figs. 8-13) with an optical character data set (S104) including optical mapping distortion, magnification at one or more object target distances and parallax information (column 6, lines 15-21) and for comparing parameters of said first and second stereo image parts so that measurement data of said object are determined, wherein said measurement data includes at least one geometric characteristic of said object (length, column 12, lines 10-16 and lines 47-60); wherein said device receives and uses one of a plurality of detachable distal tips (4, column 6, lines 55-56), wherein each of said tips has a corresponding optical character data set and wherein data determined from said image is used to select which optical characteristics data set

Art Unit: 2872

corresponds to said detachable tip in said probe (column 6, lines 1-53); wherein the optical characteristics data set is stored in non-volatile memory column 6, lines 9-14); and further comprises a calibration means (figs. 6A, 6B, 7A, 7B) for generating said optical characteristics data set of said device, wherein said calibration means includes a plurality of object target points which appear in both of said first and second stereo image parts when viewed with said probe (column 7, lines 61-column 9, lines 42) wherein said plurality of object target points comprises at least two object target points with known spacing between them at a first object target distance and at least two object target points with known spacing between them at a second target distance, wherein a distance between said first and second object target distances is known and wherein one of said first and second object target distances is known (fig. 7A) and includes using a reflection of illumination of at least one known object target distance (in so far as an image is a reflection of illumination) and a means for color balancing (column 9, lines 36-42 and column 11, lines 14-20 with column 14, lines 56-58, in so far as the color must be balances to compare the luminance). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the measuring means, calibration means and detachable tips with optical characteristics data sets of Sakiyama et al. in the system of Takahashi to be able to quickly and accurately measure different specific characteristics of the object. Further, regarding claims 26 and 63, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the optical characteristics data set so the probe is operable in a medium with an index of refraction other than air, since it is been held that discovering an optimum value of a result effective variable involves only routine skill in the art. One would have been motivated to adjust the data set for the purpose of providing accurate data for

Art Unit: 2872

calibration and measurement when using different probes. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).). The method of utilizing the structure of the claim is inherent therein.

Regarding claims 22 and 67, Takahashi in view Sakiyama et al., as applied to claims 17 and 60 above, disclose the claimed invention but do not explicitly state whether detection of the plurality of object target points are automatic. It would have be obvious to one having ordinary skill in the art at the time the invention was made to automate the detection of the plurality of object target points since it has been held that broadly providing a mechanical or automatic means to replace manual activity which accomplishes the same result involves only routine skill in the art. One would have been motivated to automate the detection of the plurality of object target points in order to more quickly establish calibration of the images. *In re Venner*, 262 F.2d, 91, 95, 120 USPQ 193, 194 (CCPA 1958)

Regarding claims 25, 48 and 85, Takahashi in view of Sakiyama et al. as applied to claims 15, 24 and 60 above, does not explicitly state that the optical characteristics data set, the first and second image parts and said determined measurements are stored in a single file. Official Notice is taken that storing many different values in a single file is well known. It would have been obvious to one having ordinary skill in the art at the time the invention was made to store the optical characteristics data set, the first and second image parts and said determined measurements in a single file to consolidate memory space and provide easy data manipulation. It is noted as directed by the MPEP 2144.03 that if the applicant does not seasonably traverse the well-known statement during examination, then the object of the well-known statement is taken

Art Unit: 2872

to be admitted prior art. *In re Chevenard*, 139 F.2d 71, 60 USPQ 239 (CCPA 1943). As such, the above official notice statement of the examiner is now held to be admitted prior art.

Regarding claim 27-30, 69-70 and 75-77, Takahashi in view Sakiyama et al., as applied to claims 15 and 60 above, further disclose wherein said measuring means includes matching means (Sakiyama, figs. 14A, 14B, 19 and 20, column 13, line 24-column 14, line 4) for automatically matching a same user-designated point (PP1, PP2) viewed on said object in each of said stereo image parts and means for requesting user selection of a correct matched point from a plurality of automatically-identified possible matches (Sakiyama, column 14, lines 35-40, in so far as when the correlation is smaller than a given value, the user can manually pick a match from the small area being viewed, which is a plurality of possible matches) and determining an overlap region of the stereo image parts in which measurement are performed (column 14, lines 4-16). Regarding claim 30, for each point picked the matching will occur (figs. 14A, 14B).

Regarding claims 39-40 and 78-79, Takahashi in view Sakiyama et al., as applied to claims 15 and 60 above, further disclose wherein said measuring means includes means for indicating a measurement accuracy of said measurement (column 14, lines 35-37) and wherein said measuring means includes mean for an operator to designate a maximum estimated error limit above which said device indicates a warning (column 14, lines 35-40, in so far as coefficient of normalization correlation is below a given value which must have been designated by at least the first operator).

Regarding claim 45 and 46, Takahashi in view Sakiyama et al., as applied to claim 15 above, further disclose wherein said measuring means includes using at least one onscreen cursor

Art Unit: 2872

(column 17, lines 29-30, Sakiyama) and a menu bar (64, fig. 23B) but does not disclose wherein said measuring means includes using at least one onscreen cursor and whether a symbol, which indicates both a type of measurement being performed and a role of said cursor in said type of measurement and wherein at least one measurement point designated by a user when performing one type of measurement is kept event when a different type of measurement is selected. Graphic User Interface (GUI) systems that use menus, symbols and cursors and “point and click” selections allow the user to quickly navigate the monitor’s images/windows and perform tasks in an easy to understand way are well known to one of ordinary skill in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the system of Takahashi in view Sakiyama et al. a GUI system to allow the user easy understanding and navigation of the monitor’s images/windows, including the “point and click” technology which would hold a measurement point while changing tasks.

4. Claims 1, 5, 8-10, 12-13, 50, 55-59 and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Sakiyama et al., as applied to claims 11 and 60 above, and further in view of Greenberg, U.S. Patent No. 5,592,328.

Regarding claims 1, 5, 8-10, 12-13, 50, 55-59 and 83 Takahashi further discloses wherein said focusing means requires a single optical axis (fig. 13(b)); wherein the views of said first (R) and second (L) adjacent stereo image parts converge at a given object distance such that said views overlap 100% at said object distance (fig. 13(a)); wherein only one of said stereo image parts is displayed (column 14, lines 30-31); and further comprising a viewing means (39, fig. 14) for viewing said first and second image parts such that a right-hand stereo part goes to a right eye

Art Unit: 2872

of a viewer and a left-hand stereo part goes to a left eye of said viewer, wherein said viewer is provided with a three dimensional perspective (column 11, lines 54-63). Takahashi discloses the claimed invention except wherein the image splitting means includes a refractive image splitting prism and wherein the refractive image splitting prism is contained within a detachable distal tip of said device. Greenberg teaches a stereoscopic system (fig. 5) with a refractive image splitting prism (106). It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the image splitting means of Takahashi with the refractive image splitting prism of Greenberg to reduce the number of parts and provide a provide more a smaller, compact system. Further, Sakiyama et al. teach a device for viewing an object with a probe (figs. 4 and 5) wherein the image splitting means (21, 22) is contained within a detachable distal tip (4, column 6, lines 55-56) of said device (figs. 4 and 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the refractive image splitting prism in the distal tip of Takahashi in view of Greenberg and make it detachable as suggested by Sakiyama et al. to be able to quickly change tips for different imaging needs (column 2, lines 27-31, Sakiyama). The method of utilizing the structure of the claim is inherent therein.

5. Claims 7 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Greenberg and Sakiyama et al., as applied to claim 1 above, and further in view of Miyano et al., U.S. Patent No. 5,840,014.

Takahashi in view of Greenberg and Sakiyama et al., as applied to claim 1 above disclose the claimed invention except for further comprising a window disposed between said prism and

Art Unit: 2872

said object, wherein contact is prevented between external media and said image splitting prism. Miyano et al. teach a device for viewing an object with a probe (figs. 1 and 2) further comprising a window (11) disposed between the elements (5-7) and an object, wherein contact is prevented between external media and the elements (fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a window between the prism and the object in the system of Takahashi in view of Greenberg and Sakiyama et al. to protect the prism and other elements of the system from being contaminated (column 1, lines 17-22, Miyano).

6. Claims 14, 31-34, 36-38 and 71-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Sakiyama et al., as applied to claim 28 above, and further in view of Hori et al., U.S. Patent No. 6,191,809 B1.

Regarding 31-33, 36-38 and 71-74 Takahashi in view of Sakiyama et al., as applied to claims 28 and 70 above disclose the claimed invention except for said automatic matching means including a global alignment means for performing an automatic global alignment of said first and second image parts and including a means for determining vertical and horizontal shifts between the first and second image parts; wherein the data derived from said global alignment means is used to make automatic matching faster and reduce a probability of incorrect matches of subsequent user-defined points. Hori et al. teaches a stereoscopic device (fig. 1) that includes global alignment means for performing an automatic global alignment of said first and second image parts (column 5, lines 43-54) and including a means for determining vertical and horizontal shifts between the first and second image parts (figs. 9A and 9B, column 7, line 6-colun 7, line 49). It would have been obvious to one having ordinary skill in the art at the time

Art Unit: 2872

the invention was made to include the global alignment means of Hori et al. in the system of Takahashi in view Sakiyama et al. to further correct for any visual image misalignment. Also, regarding claims 36 and 37, the addition of the global alignment means would reduce the probability of incorrect matches of subsequent user-defined points and make the matching faster because the image parts would already be visually more aligned and less calculations would be necessary. Regarding claim 38, the data from the global alignment means would be incorporated into the position of the images for determining overlap as stated above with regard to claim 77.

Regarding claim 14, Takahashi in view of Sakiyama et al. and Hori et al., as applied to claim 31 above disclose the claimed invention except for a difference between said optical characteristics data set and the global alignment data being determined and signaling a user. Official Notice is taken that it is well known to one of ordinary skill in the art to compare variables within a system to ensure the accuracy of the data in the system and to further notify the user of the results. It would have been obvious to one of ordinary skill in the art at the time the invention was made to compare said optical characteristics data set and the global alignment data to verify the accuracy of the data and to further notify the user of a difference to be able to correct any problems quickly.

Regarding claim 34, Takahashi in view of Sakiyama et al. and Hori et al., as applied to claim 31 above disclose the claimed invention but are silent as to whether the points used in the global alignment process are user-designated matched points or automatically determined points. Since either set of points yields the same results, it would have been obvious to one of ordinary skill in the art at the time the invention was made use any of the above sets of matching points in order to provide correct input data for the global alignment process.

Art Unit: 2872

7. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Sakiyama et al. and Hori et al., as applied to claim 31 above, and further in view of Ko, U.S. Patent No. 5,710,428.

Takahashi in view of Sakiyama et al. and Hori et al., as applied to claim 31 above disclose the claimed invention except for wherein a correction by a user of an incorrect automatic match automatically invokes said global alignment means. Automated feedback loops that include user override are well known for providing automatic control over a variable while still being able to correct for unforeseen problems. For example, Ko uses an automatic feedback loop to correct the image displayed in the system (column 2, lines 43-52) as well as a user override to provide even better images when needed (column 2, lines 53-60). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a user override within the automatic system of Takahashi in view of Sakiyama et al. and Hori et al. to correct for unforeseen problems like an incorrect match.

Response to Arguments

8. Applicant's arguments filed 30 August 2004 have been fully considered but they are not persuasive.

Applicant argues that Takahashi et al. does not teach or describe "that a single image is being split using a single optical system along a single optical axis." The examiner respectfully disagrees. As shown in fig. 13, Takahashi clearly discloses a single optical system (fig. 13(a)), which takes a single image (sample, not shown) and splits it (via an image splitting means, 28

Art Unit: 2872

and 27A) along a single optical axis (see fig. 13(b)) to the single electronic imager (31). Further the examiner would also like to point out in applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., single optical system or no shielding plate or lens pairs) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant further argues that the Greenberg reference describes an illumination system and therefore is not appropriate for use with an imaging system. The examiner respectfully disagrees. Imaging and illumination systems are comparable systems for carrying focused light down an optical train and the lenses, such as the refractive image splitting prism, will operate the same when transmitting illumination light from a light source or transmitting image light from a sample. Further, in response to applicant's argument that it is unclear how the refractive image splitting prism would be configured in Takahashi et al., the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Finally, applicant argues that the combination would have been made long before because of a long felt need to solving the problems of the present application. However no evidence is provided. For example, there is no showing that others of ordinary skill in the art were working on the problem and if so, for how long. In addition, there is no evidence that if

Art Unit: 2872

persons skilled in the art who were presumably working on the problem knew of the teachings of the above cited references, they would still be unable to solve the problem. See MPEP § 716.04.

Applicant also argues that because the distal tip of Sakiyama et al. may also include components other than the image splitting means/refractive prism, it is not an appropriate teaching. The examiner respectfully disagrees and notes that the claims recite open-ended language. Thus, reliance upon the Sakiyama et al. reference is appropriate since this reference includes a detachable distal tip. Again, the examiner would also like to point out in applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., functionality when the tip is not in place) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant further argues that, with regard to claim 11, Sakiyama et al. does not imply or teach any aspect that deals with simultaneous display of any portion of the image parts with various magnifications and only to an arithmetic technique for image distortion/correction. The examiner respectfully disagrees. In column 8, lines 36-38, Sakiyama et al. states that the coefficients are used to match magnifications of the two images and therefore, before the images are corrected, they are displayed at various magnifications.

Finally, for claims 14-17, 24-27, 39, 45, 46, 60, 69, 78 and 85 applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Art Unit: 2872

9. It is noted by the Examiner that the 112 rejection made in the previous Office Action have been withdrawn due to amendment by the Applicant.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (571) 272-2313. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LAF

October 15, 2004


MARK A. ROBINSON
PRIMARY EXAMINER